REMARKS

I. Introduction

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Claims 3-9 are amended to remove references to non-elected subject matter. Claims 3 and 7 are further amended to further define the polypeptides encoded by the contemplated polynucleotides with respect to function. Support for these amendments can be found at, for example, Table 1 of the specification. The amendments do not contain any new matter as they are fully supported by the specification and the claims as originally filed.

Upon entry of this Amendment, claims 3-11 will remain pending in the application. A detailed listing of all claims that are, or were, in the application, irrespective of whether a particular claim remains under examination in the application, is presented, beginning on page 2 of this paper under "Listing of Claims," with an appropriate defined status identifier.

II. Response to Issues Raised by Examiner in Outstanding Office Action

A. Claim Rejections – 35 U.S.C. § 101

Claims 3-11 are rejected by the Examiner under 35 U.S.C. § 101 for allegedly lacking either a specific, substantial and credible asserted utility, or a well established utility. Applicants respectfully traverse this ground for rejection.

The claimed invention is supported by credible, asserted utilities. For example, the polynucleotides of the invention are associated with cell proliferation. Indeed, the application is drawn to "molecules associated with cell proliferation," thus, MACP-2 is associated with cell proliferation, as are all of the polynucleotides disclosed in the application. In fact, the acronym "MACP" derives from "molecules associated with cell proliferation." Accordingly, as amended

herein, claims 3 and 7 recite "the polynucleotide encodes a polypeptide associated with cell proliferation."

There is abundant support in the specification demonstrating that MACP-2 is associated with cell proliferative disorders. For example, Table 1 illustrates that a clone of MACP-2 was isolated from a cDNA library (PROSNOT15) derived from a prostate cancer tumor sample (see Table 4 for a description of the library). Furthermore, the nucleotide sequence encoding MACP-2 (SEQ ID NO:7) was found in 71.4% of cDNA libraries that were proliferative in nature (see Table 3). These data support the assertion that MACP-2 is associated with cell proliferative disease.

These data are further supported by data from the literature. In one such report, the polynucleotide sequence encoding MACP-2 was found to be down-regulated in prostate cancer. In this report, Wissmann et al., J. Pathol 201(2):204-12 (2003), show that expression of the polynucleotide encoding MACP-2 (termed WIF1 in this report) is down-regulated at the RNA level in 64% of primary prostate cancers. These data are consistent with the above described data, contrary to the Examiner's conclusion that "[i]t is unclear how Applicant can argue that MACP-2 is present in 71.4% of cDNA libraries of proliferative nature, but absent in 64% of primary prostate cancers" (Office Action, page 4). Wissmann reports on a differential gene expression analysis of particular genes in prostate cancer. Wissmann defines such differential expression as requiring that the gene must: (1) be expressed in at least 50% of prostate tumor patients, (2) be up-regulated or down-regulated in at least 10% of tumor samples and, (3) the degree of up- or down-regulation should be at least two-fold (p.208, col. 1, 2nd paragraph). Thus, with respect to MCAP-2 (termed WIF1), Wissmann shows that MACP-2 is expressed in 42 of 54 (i.e., 78%) of tumor samples (see p. 208, col. 1, 3rd paragraph and Table 1). Wissmann further shows that expression of the polynucleotide encoding MACP-2 is down-regulated at the RNA level in 64% MACP-2-expressing tumors (see p. 208, col. 1, 3rd and 5th paragraphs). Thus, these data are consistent with the disclosure of the present application which indicates that MACP-2 is associated with cell proliferative disorders. There are many such examples in the literature of

proteins that are down-regulated in proliferative disorders (e.g., proteins encoded by tumor suppressor genes).

One of skill in the art would recognize from these data that MACP-2 may be useful as a marker in cell proliferative disorders, where a decrease in expression of MACP-2 may correlate with aberrant cell proliferation. The specification teaches that MACP protein levels may be assayed by methods known in the art to determine gene expression. For example, "a variety of protocols for measuring MACP, including ELISAs, RIAs and FACS, are known in the art and provide a basis for diagnosing altered or abnormal levels of MACP expression" (specification at page 34, lines 11-13). The specification states further that "the polynucleotides encoding MACP may be used for diagnostic purposes" and that "the polynucleotides may be used to detect and quantitate gene expression in biopsied tissues in which expression of MACP may be correlated with disease" (specification at page 34, lines 20-24).

Based on the above, the specification asserts a credible utility for the claimed polynucleotides. Accordingly, Applicants respectfully request reconsideration and withdrawal of these rejections.

B. Claim Rejections - 35 U.S.C. § 112, 1st Paragraph (Enablement)

Claims 3-11 were rejected under 35 U.S.C. § 112, first paragraph, for an alleged lack of enablement. Specifically, in rejecting claims 3-11 under 35 U.S.C. § 101 because the claimed invention allegedly lacks utility, the Examiner asserts that "one skilled in the art clearly would not know how to use the claimed invention" (Office Action at page 3, line 17). Applicants respectfully traverse this ground for rejection.

Based on the arguments in the preceding section, the application supports a credible utility for the claimed polynucleotides and therefore, the rejection under 35 U.S.C. § 112, first paragraph, for alleged lack of enablement has been rendered moot. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection.

B. Claim Rejections - 35 U.S.C. § 112, 1st Paragraph (Written Description)

Claims 4 and 8 were rejected under 35 U.S.C. § 112, first paragraph, for alleged lack of written description. Applicants respectfully traverse this ground for rejection for at least the reasons already of record.

Further, Applicants respectfully disagree with the Examiner's assertion that "[t]his disclosure is not supportive of claims to sequences that are any less than 100% identical to SEQ ID NO:2 or SEQ ID NO:7" (Office Action, p. 6). Contrary to the Examiner's assertion, the present specification satisfies the written description requirement as detailed in the USPTO's "Synopsis of Application of Written Description Guidelines." As stated in Example 14 of the Synopsis,

> The single species disclosed is representative of the genus because all members have at least 95% structural identity with the reference compound and because of the presence of an assay which applicant provided for identifying all of the at least 95% identical variants of SEQ ID NO: 3 which are capable of the specified catalytic activity.

In other words, the written description requirement for a genus is satisfied by (1) requiring a structural identity of "at least 95%" with a reference sequence and (2) the presence of an assay for identifying variants with the recited function. Applicants claims, as amended, satisfy these requirements. Specifically, with respect to requirement (1), claims 3 and 7 (from which claims 4 and 8 depend, respectively), as amended herein, recite "at least 95%" sequence identity to reference sequences SEQ ID NO:2 and SEQ ID NO:7, respectively. Thus, the claims recite a 95% identity to a reference sequence and therefore satisfy this first requirement. With respect to requirement (2), claims 3 and 7, as currently amended, recite a "polypeptide associated with cell proliferation." Accordingly, contemplated variant polynucleotides can be assayed for association with cell proliferation by, for example, Northern analysis or microarray analysis of proliferating cells or cells exhibiting a proliferative disorder. Guidance for these methods can be found in the specification at for example, Example IV (pages 41-42) and Example VII (pages 44-45). In addition these methods are well known in the art. Thus, this second requirement is satisfied.

Based on the above, the written description requirement is fully satisfied for the scope of claims 3 and 7 and dependent claims 4 and 8, as amended. Accordingly, Applicants respectfully request reconsideration and withdrawal of these rejections.

CONCLUSION

The present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

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The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition(s) for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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